Working closely with farmers in the Shropshire region, researchers at Harper Adams University are looking at novel ways to limit potato cyst nematodes (PCN) – highly damaging parasites of potato. Dr Matthew Back is leading this research into the use of biofumigation.

Currently, the management of potato cyst nematodes relies heavily on the use of nematicides. These products have an uncertain future due to evolving EU legislation. Biofumigation using brassica cover crops is a promising crop protection strategy that can be used to reduce soil borne pests, pathogens and weeds.

Biofumigation is a strategy which uses plants, mainly belonging to the Brassica family, that produce chemicals called glucosinolates. When the tissues of these plants are damaged, these glucosinolates are broken down by an enzyme to release various substances - including isothiocynates (ITC’s). ITC’s are known to suppress numerous pest and disease organisms including potato cyst nematodes.

The biofumigation method involves growing glucosinolate producing plants as a cover crop between crops in the rotation. Biofumigant plants are broken down thoroughly and mixed into in moist soils to induce the production of ITC’s.

Previous work has shown that ITC’s have the ability to suppress the juvenile stages and the encysted eggs of PCN. However, work is still required to optimise the method under field conditions and to develop suitable guidelines for potato growers, so Dr Back and his team are working with local farmers in the region to field test the effectiveness of this process. The test sites were selected based on their history of PCN infestations, PCN species composition, and PCN population density.

Click here for more information on the work being conducted [1].


Links
[1] http://www.harper-adams.ac.uk/research/project.cfm?id=83